

Remarks

Applicants have amended Claims 1, 13 and 31. New Claims 64-120 have been added. In view of these amendments and the following remarks, Applicants request reconsideration of the present application.

The Examiner has rejected Claims 1-47 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Specifically, the Examiner states that the term *material property* is "unclear" in context. Applicants respectfully traverse this rejection.

35 U.S.C. §112, second paragraph, states that the "specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as the invention." Whether a claim is indefinite requires a determination of whether those skilled in the art would understand what is claimed when the claim is read in light of the specification" *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.* 806 F.2d 1565, 1576, 1 USPQ2d 1081, 1088 (Fed. Cir. 1986). It is impermissible in law to apply the "full, clear, concise, and exact" requirement of the *first* paragraph of §112 to the claims. *Orthokinetics*, at 1575.

Applicants respectfully submit that a person of ordinary skill in the art would readily understand what is being claimed. That is, one of ordinary skill in the art would recognize that *any* material property of the composition can be measured. It would be unduly burdensome to require Applicants to recite every possible material property that might be measured in accordance with the invention and Applicants respectfully submit that the phrase "material property" is as precise as the subject matter of the invention permits. Therefore, Applicants request removal of this rejection.

The Examiner has rejected Claims 1, 3, 4, 7, 8, 13, 15-17, 19, 22, 31, 32, 36, 40, 41, 43 and 44 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,268,018 by Mourer et al.

Applicants respectfully traverse this rejection. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently

described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). “The identical invention must be shown in as complete detail as is contained in the ... claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Applicants submit that the Examiner has not met the burden required under 35 U.S.C. §102.

Mourer et al. is directed to a process for spraying molten metal droplets by atomizing a flow of molten metal. The temperature of the molten metal droplets can be selectively varied by adjusting the flow rate of the molten metal and/or the flow rate of the atomizing gas in response to a control signal. For example, the position of the metal droplets impinging on a mold or subsequently formed article can be sensed and the temperature of the droplets can be adjusted depending on the position of the impinging droplets.

Independent Claim 1, as amended, recites a method for the fabrication of particulate materials including providing a precursor composition to a reactor and reacting the precursor composition to form reacted precursor particles and collecting the reacted precursor particles, wherein the precursor composition is varied in a controlled manner and on a real-time basis and the precursor particles can be separately identified and tested for a material property.

Mourer et al. do not disclose or suggest the step of collecting reacted precursor particles. Mourer et al. disclose producing metallic articles, such as in a mold, from molten metal droplets. Further, Mourer et al. does not disclose or suggest varying the composition of a precursor composition on a real-time basis during the process. Mourer et al. merely disclose changing the flow rate of the molten metal and/or the atomizing gas. For at least these reasons, Mourer et al. does not disclose or suggest the invention recited in independent Claim 1, and removal of this rejection is requested.

Dependent Claims 3, 4, 7, 8, 13, 15-17, 19 and 22 depend upon Claim 1 and include all of the limitations thereof. Therefore, removal of this rejection with respect to these claims is also requested.

Independent Claim 31, as amended, recites a process for the fabrication and analysis of particulate materials, including the steps of providing a precursor composition

and continuously reacting the precursor composition in a reactor to form reacted particles, wherein a reactor condition is varied in a controlled manner to form at least two portions of the reacted precursor particles. The portions of reacted precursor particles are then analyzed for at least one material property.

Mourer et al. does not disclose or suggest the step of analyzing first and second reacted precursor portions. Indeed, Mourer et al. discloses that the molten metal droplets are deposited in a mold, thereby becoming part of the whole article (i.e., they are no longer in particulate form) and not being amenable to selective analysis. Therefore, it is submitted that Mourer et al. does not disclose or suggest the invention recited by independent Claim 31 and removal of this rejection is requested.

Claims 32, 36, 40, 41 and 43 depend upon Claim 31 and include all of the limitations thereof. Therefore, removal of this rejection with respect to these claims is also requested.

Independent Claim 44 recites a method for selecting a particulate material having a desired property, including the steps of reacting dispersed precursor droplets in a reactor to form reacted precursor particles and measuring at least one material property of the particles while dispersed in a carrier gas. Mourer et al. does not disclose or suggest measuring a material property of reacted precursor particles, let alone while the particles are dispersed in a gas. Therefore, removal of this rejection is also requested.

The Examiner has also rejected Claims 1, 3, 4, 11, 13, 16, 19, 22 and 28-30 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,610,718 by Araya et al. Applicants respectfully traverse this rejection.

Araya et al. is directed to a method for manufacturing ultra-fine particles having a size of not greater than $0.1\ \mu\text{m}$ (Col. 1, lines 37-41). The particles are manufactured by striking an arc across an electrode and a material to be vaporized into ultra-fine particles (see, e.g., the Abstract). The invention is based upon the setting of either the arc current or arc voltage in a manner to provide plasma currents and enhance the output rate of the ultra-fine particles (Col. 1, lines 49-59).

The Examiner states that the process disclosed by Araya et al. includes "steps such as varying the amount of arc current at different points within the process". In fact, what is

disclosed by Araya et al. is that the current/voltage characteristics of the arc, and hence the particle production rate, *naturally* vary across the area of the material. The applied current/voltage is set at a predetermined value (see, e.g., Col. 1, lines 53-56) and there is no disclosure or suggestion that the applied current/voltage is varied during the process.

Independent Claim 1 recites a method for the fabrication of particulate materials including providing a precursor composition to a reactor and reacting the precursor composition to form reacted precursor particles and collecting the reacted precursor particles, wherein the precursor composition is varied in a controlled manner on a real-time basis. This method is neither disclosed nor suggested by Araya et al. There is no disclosure by Araya et al. that the material that serves as the source for the ultra-fine particles is varied in composition during the process. Further, there is no disclosure or suggestion that the reacted particles have any different material properties, only that the production *rate* is different. Therefore, removal of this rejection is requested.

Claims 3, 4, 11, 13, 16, 19, 22 and 28-30 all depend upon independent Claim 1 and include all of the limitations thereof. Therefore, removal of the rejection with respect to these claims is also requested.

The Examiner has also rejected Claims 9-12, 14, 23, 33-35, 37-39, 45 and 46 under 35 U.S.C. §103(a) as being unpatentable over Mourer et al. Applicants respectfully traverse this rejection.

Mourer et al. is discussed above and independent Claim 1, upon which Claims 9-12, 14 and 23 depend, has been differentiated from Mourer et al. Therefore, removal of this rejection is requested.

Mourer et al. is also discussed above with respect to independent Claim 31, upon which Claims 33-35 and 37-39 depend. Claim 31 has been differentiated from Mourer et al. and therefore, removal of this rejection is requested.

Mourer et al. is also discussed above with respect to independent Claim 44, upon which Claims 45 and 46 depend. Claim 44 has been differentiated from Mourer et al. and removal of this rejection is also requested.

The Examiner has rejected Claim 23 under 35 U.S.C. §103(a) as being unpatentable over Araya et al. Araya et al. is discussed above with respect to independent Claim 1, upon which Claim 23 depends. Claim 23 is directed to the production of metal solder alloys, which are not disclosed or suggested by Araya et al. Therefore, it is submitted that Claim 23 is also allowable.

The Examiner has rejected Claims 18, 20, 21, 24-27, 34, 35 and 47 under 35 U.S.C. §103(a) as being unpatentable over Mourer et al. in view of U.S. Patent No. 6,087,003 by Benoit et al. Applicants respectfully traverse this rejection.

Mourer et al. is discussed above. Benoit et al. is directed to a method and device for coating particles and does not address the shortcomings of Mourer et al. with respect to the present invention.

The Examiner states that with respect to certain materials, including electrocatalyst materials (Claims 24 and 25) and phosphor compounds (Claim 27), Mourer et al. is "drawn to the production of metal droplets in general, which would include (these) materials." Applicants submit that a disclosure of the production of a metal does *not* suggest the formation of these materials, particularly in the context of the present invention.

In view of the foregoing, removal of this rejection is also requested.

Applicants acknowledge with appreciation the Examiner's indication that Claims 2, 5, 6 and 42 would be allowable if rewritten in independent form including all the limitations of the base claim. Applicants also acknowledge with appreciation the Examiner's indication that Claims 48-63 are allowable over the prior art of record. Applicants have rewritten Claim 2 as new Claim 64 and have included dependent Claims 65-92 corresponding to Claims 3-30. Applicants have also rewritten Claim 5 as new Claim 93 and have included dependent Claims 94-120 corresponding to Claims 2-4 and 6-30. Therefore, allowance of these claims is requested.

As requested by the Examiner, formal drawings illustrating Figs. 1-7 accompany this response.

A check for the addition of new claims accompanies this response, calculated as

follows:


	Claims Remaining After Amendment	Highest Number Previously Paid For		Extra Claims	Rate		Additional Fee
Total Claims	120	- 63	=	57	x \$18	=	\$1026
Independent Claims	7	- 5	=	2	x \$84	=	\$168
Multiple Dep. Claim	0	0		\$280		=	0
Total Fee						=	\$1194

A petition for a three-month extension of time along with the appropriate fee also accompanies this response. It is not believed that any additional fees are owed, however, any such additional fees can be charged to deposit account 50-1419.

Respectfully submitted,

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